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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,785	10/22/2001	Gang Sun	18062G-004100US	6976

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EXAMINER

EINSMANN, MARGARET V

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,785

Applicant(s)

SUN ET AL.

Examiner

Margaret Einsmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-8 and 10-34 is/are pending in the application.
- 4a) Of the above claim(s) 16-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-8, 10-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group 1 in Paper No. 7 is acknowledged.

The traversal is on the ground(s) that applicant's maintain that there is no serious burden on the examiner to examine all of the claims and that the product of the group I claims cannot be made by a materially different process. The first statement is not found persuasive because the examination of all four categories of the claimed invention involves searching several classes and subclasses as noted in the restriction requirement that are not required for the search of the group I claim. The second argument is not persuasive because art of record teaches several different methods of imbedding nanoparticles into textile substrates. Additionally, the product of group II is distinct from the product of group I and such distinction has not been traversed.

The requirement is still deemed proper and is therefore made FINAL.

The following form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Todd, US 6,136,044. Patentee discloses a process of formation of microparticles imbedded in textile fabrics by reducing metals in situ. The metal particles become an integral part of the fiber. See abstract. Column 4 lines 1-22 discloses the process of formation of the particles in situ in and around the textiles. Patentee states, "Because the nucleating agent and the metal ions are smaller than a preformed micro-particle, greater penetration into the fiber and substructure of the textile was achieved by this method than by the prior art method of preforming the microparticles before dyeing." The examples illustrate the process. In example 1 beginning in column 5 line 55, six different fabrics were dyed by the process of the invention. They were spun acetate, bleached cotton, spun polyacrylamide, nylon 6.6, spun silk, spun viscose and worsted wool. A gold solution was used in example 2, which precipitated gold microparticles into all of the above named fibers. Regarding the limitation of claim 11, example 7 oxidizes the imbedded metal particles, converting them into metal oxides, as shown by the color changes induced in the fabrics. Regarding the limitation of claim 6, it does not further limit the composition claimed in claim 1; it merely states many well known utilities for any textile product.

Additionally, column 2 lines 30-44 discloses that gold sols have been adsorbed onto textile fibers in the prior art. The term gold sol is defined at col 1 line 49 as submicroscopic particles. Applicant 's nanoparticles claimed in claim 8 are 10 micrometers to 1 nanometer, which are the submicroparticles as defined by Todd.

Claims 1-8, 10-11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Erskine, US 6,516,633 B1.

Erskine et al., US 6,516,633 B1 discloses silver halide and silver halide encased in glass nanoparticles which are imbedded in textiles. The textiles may be selected from the list in col 6 lines 26 et seq. and include cotton, nylon, polyester and others as claimed and may be fabric, yarn or fiber as disclosed in col 6 lines 4 et seq. Example 2 discloses the formation of nanoparticles in which silica, which is SiO_2 , silicon dioxide, is part of the nanoparticles. Patentee suggests at column 5 lines 62-65 that the textile so colored may be used in a drapery. Accordingly, patentee teaches all of the limitations of the claims.

Claims 1-8, 10, 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Soane et al., US 2003/0013369.

Soane discloses textile materials with imbedded nanoparticles. Said textiles may be natural or synthetic chosen from the list on page 6 [0093]. The nanoparticles may be selected from the group disclosed on page 2 [0013]. They range in size from 1-1000nm which is inclusive of the range claimed in claim 28. see page 4 [0081]. They may be used in sheets, towels, carpeting, socks etc. as disclosed on page 7 [0099]. Regarding the limitations of claim 15, [0099] discloses antimicrobial finishing, [0102] to

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[0119] disclose coloration; [0120] discloses anti-UV finishing and specifically Fe_2O_3 as claimed; silver containing particles are disclosed in [0156]. Accordingly all of the limitations of the claims are disclosed.

Response to Arguments

Applicant's arguments filed 9/12/2003 have been fully considered but they are not persuasive regarding the above rejections based on Todd, Erskine and Soane.

Applicant argues that Todd requires the nucleating agent to penetrate throughout the fibers of the fabric wherein the claimed embedded nanoparticles remain closely packed at the surface of the polymer of fiber. The examiner fails to see the above limitation in any of the pending claims. Additionally Todd teaches surface property changes, such as color, which is a teaching that at least a portion of his particles are at the surface of the fabric. See Table 4 col 11-12.

Applicant argues that the nanoparticles of Erskine are chemically attached to the surface of the fiber by covalent binding and Applicant's product is attached with a higher percentage of particles residing on the surface of the fiber. Applicant teaches that Erskine does not teach an embedded nanoparticle wherein nanoparticles are closely packed at the surface of the polymer or fiber as is presently aught and claimed. The examiner fails to see where the stated limitation is claimed. In this reference the particles comprise inorganic particles as claimed (glass) which are imbedded into the fiber by being covalently bonded.

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Applicant argues the Soane reference by stating that the particles of Soane show good fastness properties because the nanoparticles are chemically attached to the surface of the textiles, for example via hydroxyl groups. In the first place, it is clear that the nanoparticles of Soane do contain inorganic particles; see col 5, [0089] which states "metal and metal oxides...." thus meeting the newly added limitation of claim 1. In the second place, the particles which are chemically attached to the surface are thus necessarily imbedded in the textile material as claimed. Applicant states on page 12 first full paragraph of the response that the nanoparticles are not evenly distributed but rather are distributed in a gradually diluted pattern from the surface to the core of the fiber. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Accordingly the three above rejections are maintained as set forth in the previous action.

The rejection of claims 1, 2 and 15 under 35 U.S.C. 102(b) as being anticipated by Bauer, US 5,240,466 is withdrawn because of applicant's amendment limiting the embedded nanoparticle to an inorganic particle or carbon black, while Bauer teaches a sulfur dye which is an organic moiety.

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret Einsmann whose telephone number is 703-308-3826. The examiner can normally be reached on 7:00 AM -4:30 PM M-Th and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 703-308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Margaret Einsmann
Primary Examiner
Art Unit 1751

November 17, 2003